

• Aspirin may help some patients whose amaurosis fugax is not due to surgically amenable lesions, by lessening platelet aggregation.

ROBERT S. HEPLER, MD

REFERENCES

- Best M, Pola R, Plechaty G: Ocular pulse studies in carotid stenosis: Relationship to carotid hemodynamics. *Arch Ophthalmol* 85:730-737, Jun 1971
- Mundall J, von Kaulla KN, Austin JH: Effect of aspirin in amaurosis fugax. *Lancet* 1:92, Jan 1972

Time Released Medication for Glaucoma

CONTROL OF GLAUCOMA using topical medication has historically been achieved by the use of medications instilled into the conjunctival sac at varying rates of frequency—depending upon the drug used and the requirements of the patient. During the night treatment is usually reduced and, therefore, control during these hours is less certain. Various drugs and vehicles have been used to reduce to a minimum the number of instillations required in 24 hours. Physostigmine, demecarium bromide, echothiophate, pilocarpine and other antiglaucoma medications have been combined with ointment bases or in vehicles containing polyvinyl alcohol, methylcellulose or Absorbase.[®] Contact is claimed to be prolonged and therefore the agents are effective for a longer period of time. It is likely that toxic levels of the drug occur with each instillation while therapeutic levels are achieved only part of the time with pulse therapy.

As a natural evolution, new systems of delivery have been investigated. Among these are administration by saturated hydrophilic contact lenses; through a copolymeric membrane permitting passage of drugs at a predetermined rate; through devices that hydrolyzed, releasing medication and degrading to self-destruction, or by the use of capsules with two compartments—one absorbing water by osmosis then, by expansion into the second chamber, forcing medication out through an opening calculated to deliver a therapeutic dose.

To date the only system available is the Pilocarpine Ocuser.[®] This wafer-shaped device consists of a core of pilocarpine and alginic acid surrounded by a copolymeric membrane. In a watery atmosphere (tears) the drug passes out of the core at a preset rate. Alterations in the nature of the

copolymeric membrane can be made to control the release rate. Two Ocuser.[®]s are now available: Pilo-20 and Pilo-40. The Pilo-20 Ocuser.[®] releases pilocarpine at 20 micrograms (μ g) per hour and the Pilo-40 at 40 μ g per hour. Therefore, the amounts of drugs required with this delivery system are some 10 to 25 times less than with pilocarpine drops. There is also the theoretical advantage that the drug is being delivered day and night.

JOSEPH G. TIRICO, MD

REFERENCES

- Barsam P: The most commonly used miotic—now longer acting. *Ann Ophthalmol* 8:809-813, Aug 1974
- Rickardson K: Membrane controlled drug delivery. Academy of Ophthalmology and Otolaryngology Scientific Exhibit, Dallas, Oct 1974
- Lerman S, Reininger B: Simulated sustained release pilocarpine therapy and aqueous humor dynamics. *Can J Ophthalmol* 6:14-23, Jul 1973
- Fraunfelder F, Hanna C: Ophthalmic drug delivery systems. *Survey Ophthalmol* 18:292-297, Jan-Feb 1974
- Armaly M, Rao K: The effect of pilocarpine Ocuser with different release rates on ocular pressure. *Invest Ophthalmol* 7:491-496, Jul 1973

Studies of the Optic Nerve Head in Glaucoma

RECENT ADVANCES in clinical evaluation of the optic disc place emphasis on the three dimensional morphology of the optic cup and the differentiation of the amount of pallor from the extent of cupping.

Studies on the qualitative appearance of the cup in the early stages of glaucoma have described the processes of central deep atrophy and upward-downward extension. The former occurs in discs with congenitally small cups which, before the onset of atrophy, did not extend to the lamina and is manifested by a "moth-eaten" appearance of the prelaminar nerve head tissue with apparent deepening of the cup in that central area. Upward or downward extension can be detected by the presence of vertical ovality of the cup which is measured by a greater vertical than horizontal cup to disc ratio. Thorough evaluation of the nerve head is increasingly dependent on the use of the slit lamp with which a stereo view can be obtained.

Using this instrument it is also possible to distinguish between the size of the optic cup and the degree of pallor. Unfortunately, use of the monocular direct ophthalmoscope to observe the disc may easily disguise the difference between these two parameters since it does not provide a good three dimensional view. Because the area of pallor

is frequently smaller than the area of cupping, increasing disc atrophy can be overlooked when pallor alone is used as a diagnostic guide.

The question of how best to record these observations has also become an important one. Where a fundus camera is available, a stereo photograph is a useful recording medium. Where it is not accessible, the use of geometric terms such as funnel, cylinder or hemisphere in addition to horizontal and vertical cut-to-disc ratios will suffice. Notation of the location of cup pallor will complete the picture and form a composite which can be of continuing value in following any patient.

GERALD L. PORTNEY, MD

REFERENCES

Schwartz B, Reinstein NM, Lieberman DM: Pallor of the optic disc—Quantitative photographic evaluation. *Arch Ophthalmol* 89: 278-286, Apr 1973

Weisman RL, Asseff CF, Phelps CD, et al: Vertical elongation of the optic cup in glaucoma. *Trans Am Acad Ophthalmol Otolaryngol* 77:157-161, Mar-Apr 1973

Portney G: Photogrammetric categorical analysis of the optic nerve head. *Trans Am Acad Ophthalmol Otolaryngol* 78:275-289, Mar-Apr 1974

Temporary Press-On Visual Aids

PRISMS HAVE BEEN USED for many years in treating strabismus but have not previously received wide patient acceptance when of significant strength because of their heavy weight and cosmetically unacceptable appearance in spectacles. Lightweight plastic membranes which adhere to the back surface of spectacle lenses have recently

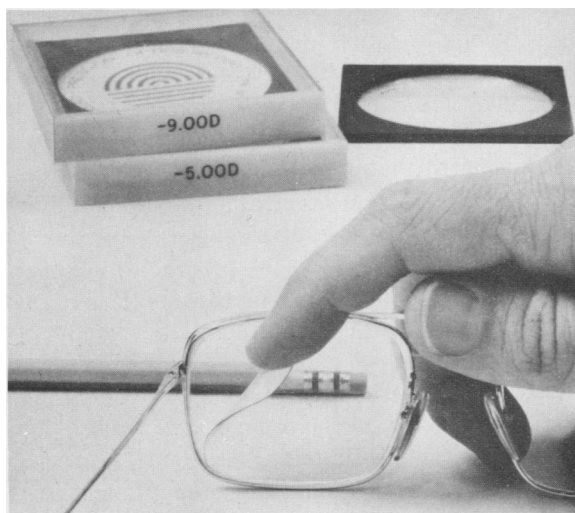


Figure 1.—Newly developed press-on membrane adds prism to spectacle lens without appreciably increasing thickness or weight.

been developed (Figure 1). These use the Fresnel principle by having a series of long narrow adjacent prisms molded into them, effectively creating high prism powers in a thin lightweight membrane. The availability of these devices has dramatically increased the usefulness of prisms and has re-awakened interest in prism therapy by ophthalmologists and orthoptists. Moreover, prisms may be varied in power and orientation before the eye without necessitating grinding new spectacle lenses, thus avoiding significant expense to patients. Also available are press-on spherical lenses which may be used for temporary modifications of refractive corrections, again without requiring a new pair of spectacles for a patient. The major disadvantage of the press-on aids is a slight decrease in clarity of vision through them, compared with optically surfaced glass. An additional problem is the possible tendency of practitioners to select this convenient form of therapy rather than a more involved approach which may, however, be more effective in treating a specific case.

ALAN M. ROTH, MD

REFERENCES

Moore S, Stockbridge L: Fresnel prisms in the management of combined horizontal and vertical strabismus. *Am Orthopt J* 22:14-21, 1972

Thorson JC: Press-on prisms in ocular motility management. *Am Orthopt J* 22:59-63, 1972

Ophthalmic Microsurgery

THE OPERATING MICROSCOPE is coming of age in ophthalmic operations. For years skilled eye surgeons have done microscopic surgical procedures on a delicate organ which must be treated with extreme precision and care because of its optical as well as its physiological characteristics. In a real sense this type of operation has been a matter of feel and experience because of the relative inadequacy of magnification available in operating loupes. New instrumentation and new training facilities now make it possible to control surgical maneuvers using high magnification and direct visualization which force even the novice to handle tissues with the delicacy and respect of a virtuoso surgeon.

A major impetus in the popularization of ophthalmic microsurgery has been the development of